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Ligation of the portal vein causes the liver to become strongly saccharine. The blood also in the system gives a strong reaction of sugar; and in one experiment the urine yielded just a traceable indication with the copper solution. The fact that the blood thus becomes saccharine on interrupting the flow of blood through the portal vein, stands directly in opposition to the result that might have been expected under the glucogenic theory.

In a communication presented to the Royal Society in 1859, it was shown that injury to certain parts of the sympathetic system produces most rapidly a strongly diabetic state. It has since been found that the introduction of carbonate of soda largely into the circulation altogether prevents this effect.

IX. "A new Ozone-box and Test-slips." By E. J. LOWE, Esq.,
F.R.A.S., F.L.S. &c. Communicated by JOHN LEE, LL.D.
Received April 16, 1860.

The ordinary form of Ozone-box being very cumbersome, the present one has been contrived to supersede it*. The box is simple in construction, small in size, and cylindrical in form; the chamber in which the *test-slips* are hung is perfectly dark, and at the same time there is a constant current of air circulating through it, no matter from what quarter of the compass the wind is blowing. The air either passes in at the lower portion of the box and travels round a circular chamber twice, until it reaches the centre (where the test-slips are hung) and then out again at the upper portion of the box in the same circular manner, or in at the top and out again at the bottom of the box.

Fig. 1 represents a section of the upper portion of the box, showing

Fig. 1.

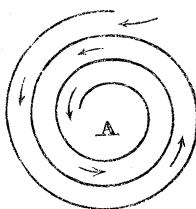
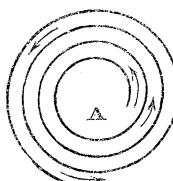


Fig. 2.



* A specimen of the instrument was forwarded with the paper.

the manner in which the air enters and moves along to the centre chamber (where the test-slip is hung at A), and figure 2 represents a section of the lower half of the box where the air circulates in the opposite direction, leaving the box on the side opposite to that on which it had entered.

The box has been tested and found to work well.

On three different dates, when there was much ozone, test-slips were hung in one box, whilst others were hung in another which had the two entrances sealed up in order that no current of air should pass through ; the result was satisfactory, viz. :—

Example.	New ozone-box.	New ozone-box sealed up.
1	10	0
2	9	0
3	9½	0

Then again, in five examples of test-slips being exposed without any box, in comparison with those placed in this new box, the result was :—

Example.	In new ozone-box.	Exposed to north without a box.
1	10	9
2	9	9
3	7	7
4	10	5
5	2	0

The ozone-box is capable of being suspended at an elevation above the ground ; and this appears to be a great advantage, because elevation seems necessary in order to get a proper current of air to pass across the test-slips ; indeed as an instance it may be mentioned, that at an elevation of 20 feet there is almost always more indication of ozone than at 5 feet.

The plan adopted here is to suspend the box to a T support, it being drawn up to its proper place by means of a thin rope passing over a pulley ; and there is less trouble in examining and changing the test-slips in this manner than there was in the old method.

The box, as described, is made by Messrs. Negretti and Zambra of Hatton Garden.

It has been urged that a box was scarcely necessary for ozone test-slips ; but as the papers fade on exposure to light, it must be

evident that in order to register the maximum amount of ozone a *dark box* is required.

Test-slips.—Paper-slips being so fragile, I have substituted others made of calico. The calico is to all intents and purposes chemically pure, containing only a few granules of starch, used in the first process of its manufacture, which it is very difficult to remove, being enveloped in the cotton fibre; it is, however, thought to be purer than the paper that is used for these test-slips, every precaution having been taken to make it so.

Results of observations.—The following Tables have been constructed from observations made between the 1st of May, 1859, and the 31st of March, 1860.

TABLE I.

Mean amount of Ozone observed from Test-slips hung for twelve hours, both at night and in the daytime, in comparison with others hung for twenty-four hours.

During the month of	Papers exposed for twelve hours.			Papers exposed for twenty-four hours.			Difference between twelve hours and twenty-four hours.		
	Day.	Night.	Difference.	Day.	Night.	Difference.			
1859.	May	0.4	1.3	0.9	1.1	1.9	0.8	0.7	0.6
	June	0.8	0.9	0.1	1.3	1.5	0.2	0.5	0.6
	July	0.9	1.0	0.1	1.2	1.3	0.1	0.3	0.3
	August	0.7	1.4	0.7	1.2	1.8	0.6	0.5	0.4
	September ..	1.9	2.6	0.7	2.5	3.0	0.5	0.6	0.4
	October ...	0.5	0.7	0.2	0.7	0.9	0.2	0.2	0.2
	November ..	1.5	1.7	0.2	1.8	2.1	0.3	0.3	0.4
	December...	1.7	2.0	0.3	2.1	2.5	0.4	0.4	0.5
	1860. January ...	2.8	2.8	0.0	3.2	3.5	0.3	0.4	0.7
	February ...	2.3	2.8	0.5	2.6	3.0	0.4	0.3	0.2
	March	4.9	5.2	0.3	5.2	5.6	0.4	0.3	0.4
Mean		1.7	2.0	0.3	2.1	2.5	0.4	0.4	0.5

The ozone being always in excess in the night, and the tests exposed for twenty-four hours showing always an excess over those only exposed for twelve hours.

TABLE II.

Number of observations without any visible ozone.

Month.	During the night.		During the day.	
	Twelve hours' exposure.	Twenty-four hours' exposure.	Twelve hours' exposure.	Twenty-four hours' exposure.
1859.	May	9	4	19
	June	18	10	15
	July	18	12	18
	August	10	4	15
	September..	2	0	0
	October ...	16	12	18
	November...	10	7	10
	December...	10	5	7
	January ...	8	6	7
	February ...	12	6	9
	March	0	0	0
Number of days...		113	66	118
				86

Mean amount of ozone with the box suspended at the height of
25 feet.

1859. December 24 hours' exposure =3·0	48 hours' exposure =5·0
1860. January... 24 hours' exposure =3·9	48 hours' exposure =4·5
February 24 hours' exposure =3·7	48 hours' exposure =5·4
March ... 24 hours' exposure =5·9	48 hours' exposure =6·4

Mean amount of ozone with the box suspended at the height of
40 feet, March 1860, with twenty-four hours' exposure =7·1.

X. "On the Temperature of the Flowers and Leaves of Plants."

By E. J. LOWE, Esq., F.R.A.S., F.L.S. &c. Communicated
by THOMAS BELL, Esq., P.L.S., V.P.R.S. &c. Received
April 16, 1860.

(Abstract.)

The present observations were made in order to ascertain whether different plants and flowers influence the temperature of the air immediately over them. The author was induced to undertake the inquiry from what he had noticed whilst making observations on the fall-cloud, or white mist of the valley, as it is usually called.

In the autumn of 1858 it was repeatedly noticed that vapour formed first over those fields from which hay had been gathered in the summer, and which were covered with a good crop of *after-math*.